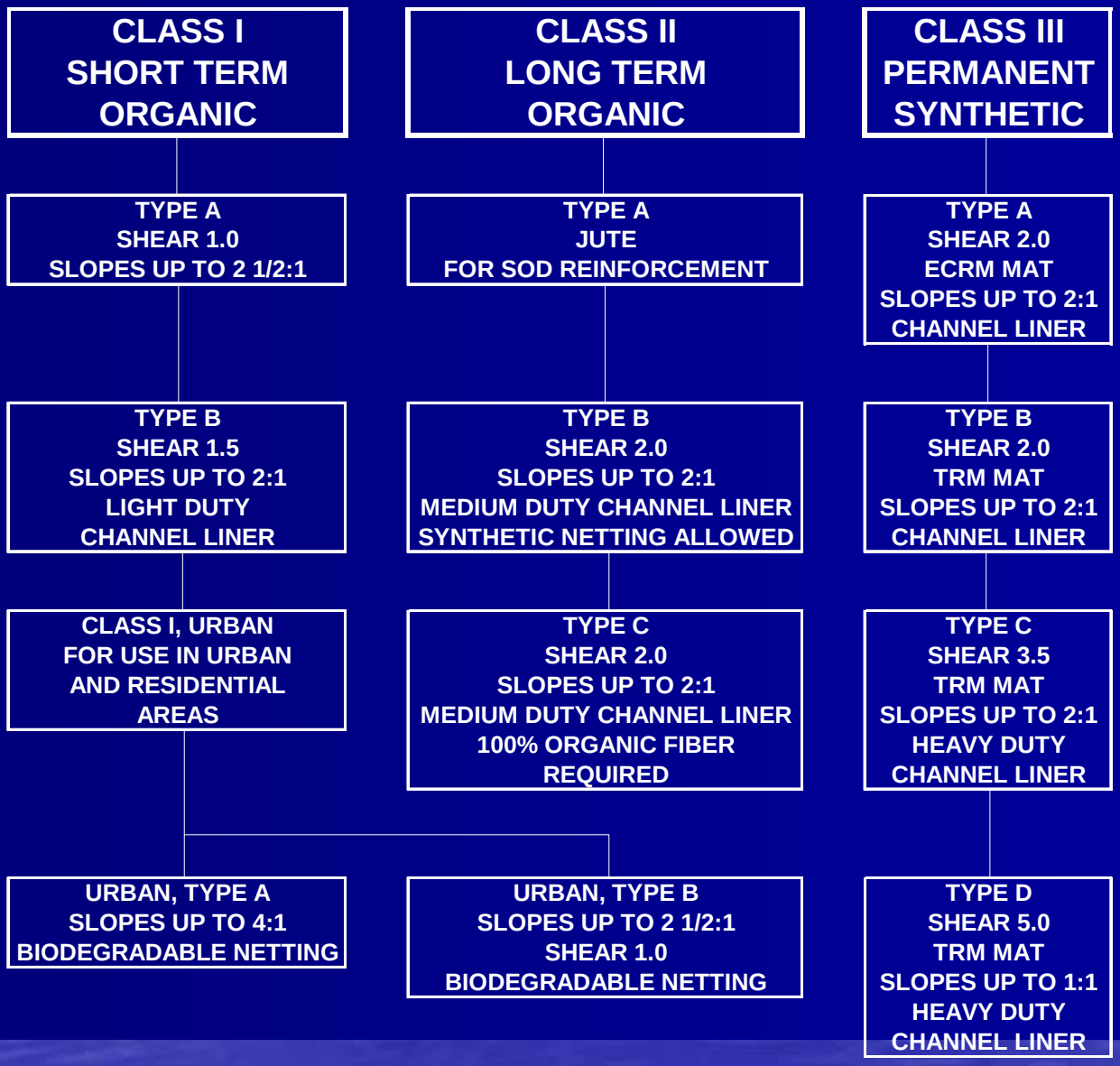
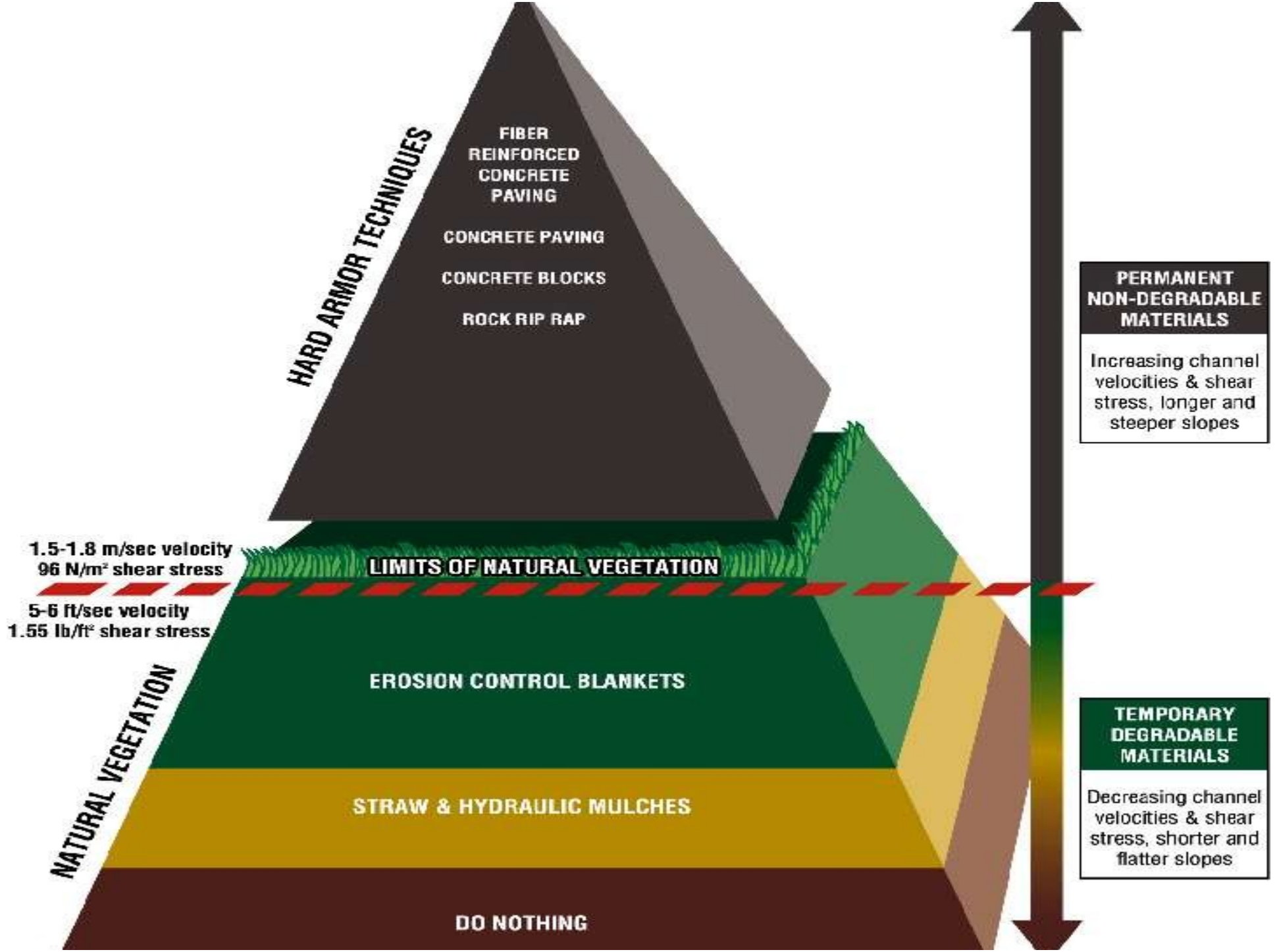
Erosion Mats
Channel (1053)
Non-Channel (1052)

Erosion Mat


CLASS I
SHORT TERM
ORGANIC
CLASS II
LONG TERM
ORGANIC
CLASS III
PERMANENT
SYNTHETIC
TYPE A
SHEAR 1.0
SLOPES UP TO 2 1/2:1
TYPE A
JUTE
FOR SOD REINFORCEMENT
TYPE A
SHEAR 2.0
ECRM MAT
SLOPES UP TO 2:1
CHANNEL LINER
TYPE B
SHEAR 1.5
SLOPES UP TO 2:1
LIGHT DUTY
CHANNEL LINER
TYPE B
SHEAR 2.0
SLOPES UP TO 2:1
MEDIUM DUTY CHANNEL LINER
SYNTHETIC NETTING ALLOWED
TYPE B
SHEAR 2.0
TRM MAT
SLOPES UP TO 2:1
CHANNEL LINER
CLASS I, URBAN
FOR USE IN URBAN
AND RESIDENTIAL
AREAS
TYPE C
SHEAR 2.0
SLOPES UP TO 2:1
MEDIUM DUTY CHANNEL LINER
100% ORGANIC FIBER
REQUIRED
TYPE C
SHEAR 3.5
TRM MAT
SLOPES UP TO 2:1
HEAVY DUTY
CHANNEL LINER
URBAN, TYPE A
SLOPES UP TO 4:1
BIODEGRADABLE NETTING
URBAN, TYPE B
SLOPES UP TO 2 1/2:1
SHEAR 1.0
BIODEGRADABLE NETTING
TYPE D
SHEAR 5.0
TRM MAT
SLOPES UP TO 1:1
HEAVY DUTY
CHANNEL LINER


HARD ARMOR TECHNIQUES
FIBER REINFORCED CONCRETE PAVING
CONCRETE PAVING
CONCRETE BLOCKS
ROCK RIP RAP
1.5-1.8 m/sec velocity
96 N/m² shear stress
LIMITS OF NATURAL VEGETATION
5-6 ft/sec velocity
1.55 lb/ft² shear stress
NATURAL VEGETATION
EROSION CONTROL BLANKETS
STRAW & HYDRAULIC MULCHES
DO NOTHING
PERMANENT NON-DEGRADABLE MATERIALS
Increasing channel velocities & shear stress, longer and steeper slopes
TEMPORARY DEGRADABLE MATERIALS
Decreasing channel velocities & shear stress, shorter and flatter slopes


Without Mat
With Mat


After 2 Weeks


After 4 Weeks


Wood Fiber

Coconut Fiber

Permanent Mat

TRM Mat

Why Use Urban Mat?

Approved Biodegradable Staples Required

Entrenchment Required Next To Live Traffic Lanes or Airport Runways & Taxiways


SCHWINN

Sensitive Areas – no net or bio net

Ditch Checks (1062)

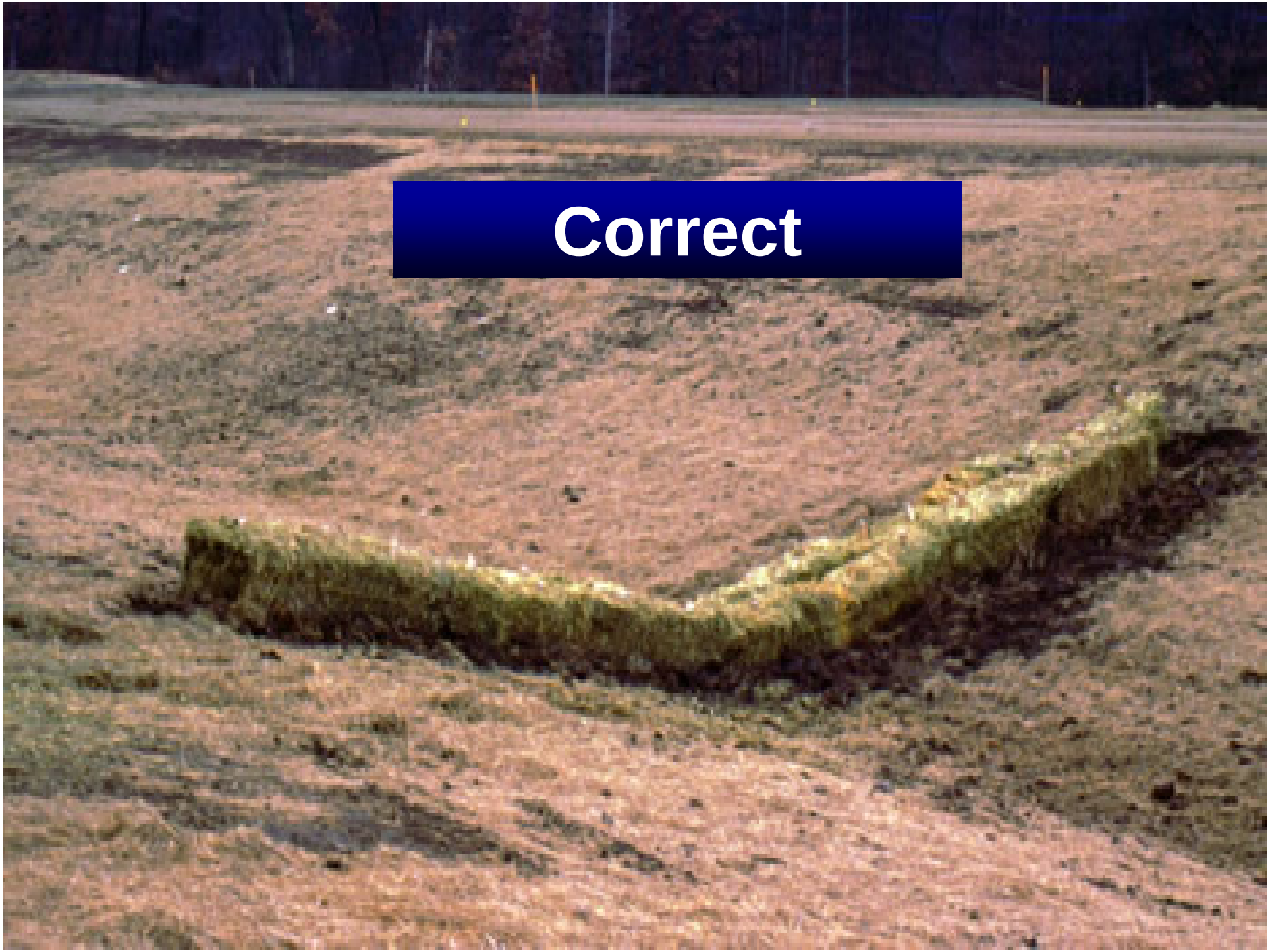

Wrong


Wrong

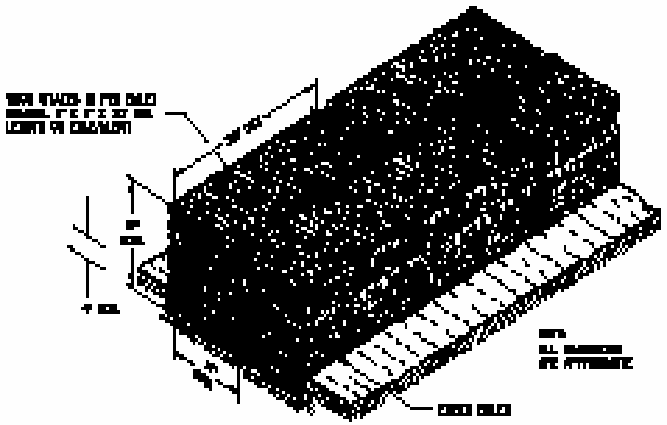

Wrong


Wrong

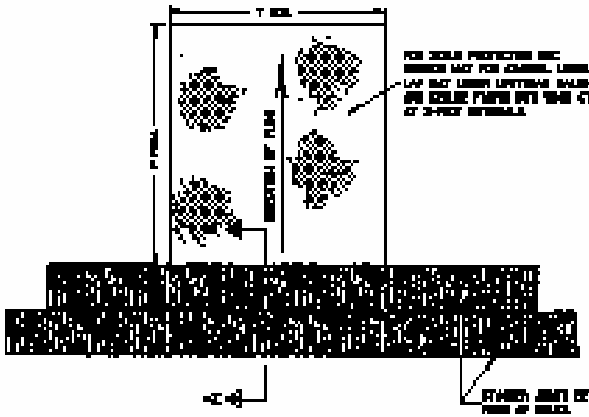

Wrong


Correct


Correct



SECTION A-A



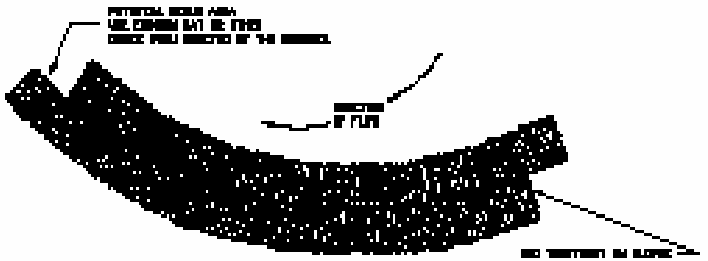
PLAN VIEW

FRONT ELEVATION

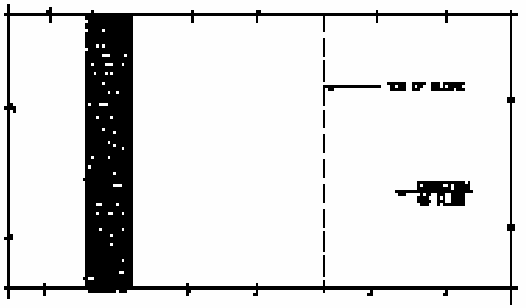
TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

① TEMPORARY DITCH CHECKS USING EROSION BALES OR MANUFACTURED BALLS IN PLACE FOR LONGER THAN TEN YEAR OF TEMPORARY DITCH CHECK, THE DEPARTMENT WILL BAY PAY FOR TEMPORARY DITCH CHECKS CONSTRUCTION OF A SMALL NUMBER OF EROSION BALES.



PLAN VIEW



PLAN VIEW

FRONT ELEVATION

EACH EXISTING BERM SLOPES DOWN FROM FILL SLOPE

BRAKING BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

STATE OF OREGON
DEPARTMENT OF TRANSPORTATION

APPROVED
CHIEF ENGINEER

DATE

STD. NO. E 8-3

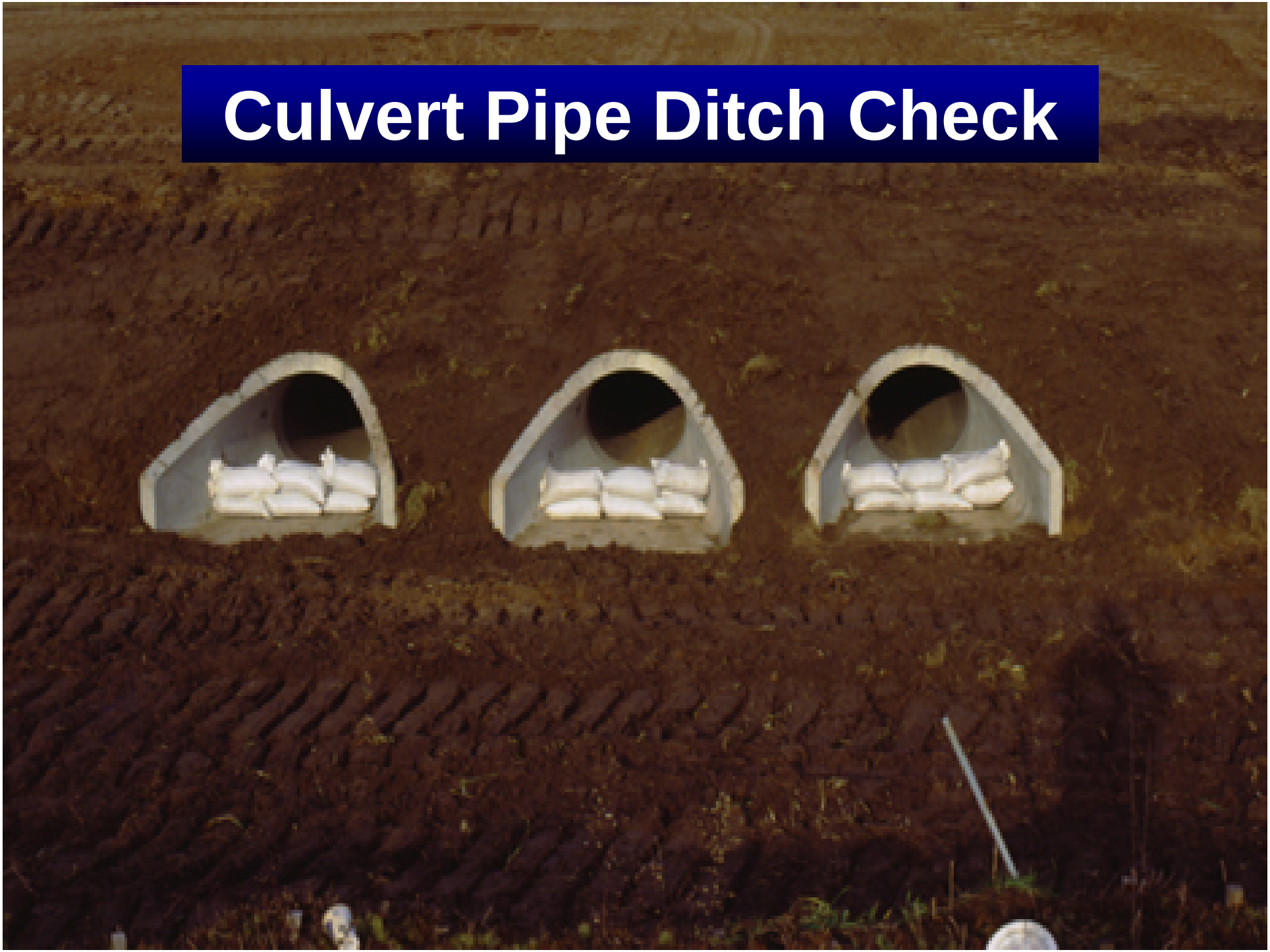
E-8 3 8 YOUS


Manufactured Ditch Checks


Stenlog

Filter Bag Ditch Checks
Potential Liability Issues?

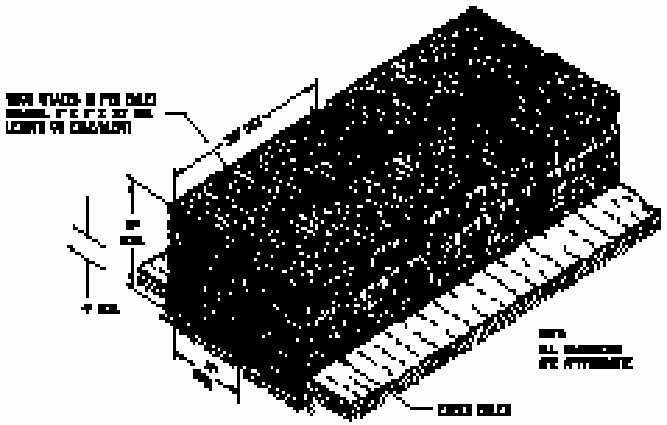
Culvert Pipe Ditch Check



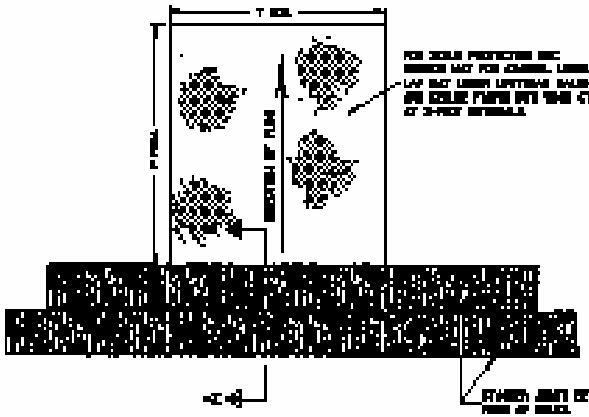

Rock Ditch Check

Sand Bag Ditch Check


Filter Bag Ditch Check
Removals?



SECTION A-A



PLAN VIEW

FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

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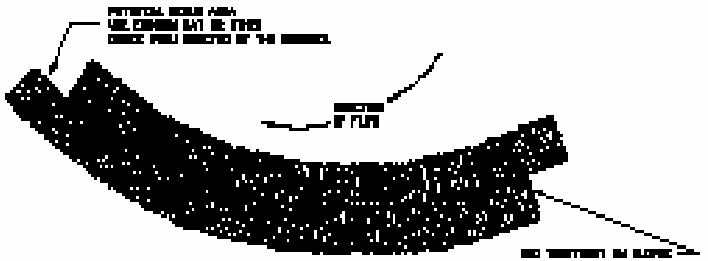
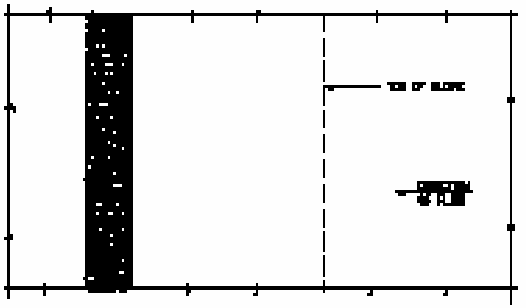


PLAN VIEW



PLAN VIEW

FRONT ELEVATION

EACH EXISTING BERM SLOPES DOWN FROM FILL SLOPE

BRAKING BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

STATE OF OREGON
DEPARTMENT OF TRANSPORTATION

APPROVED
CHIEF ENGINEER

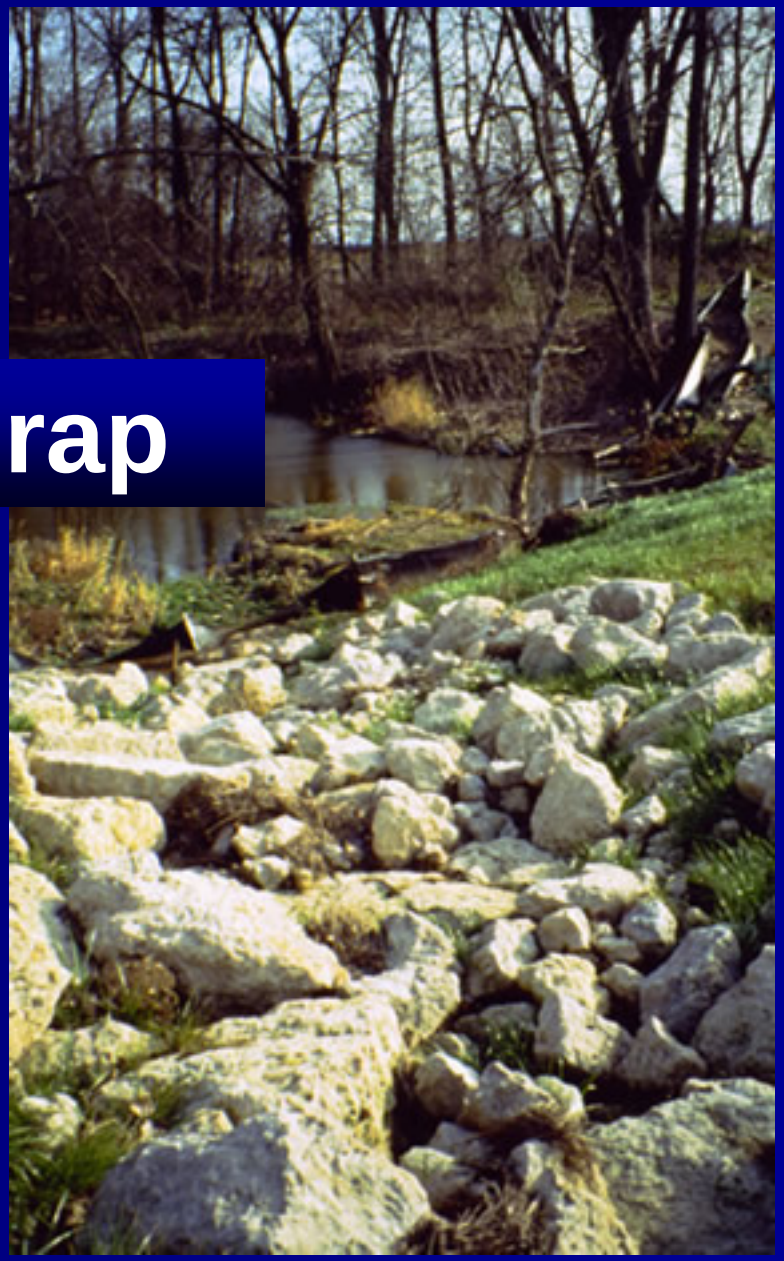
DATE

STD. NO. E 8-3

E-8 3 8 YOUS

Rip Rap

Riprap



Cut / Fill Transition


Heavy Riprap???

Is there too much Fines in the Riprap?

Is there too much Fines in the Riprap?

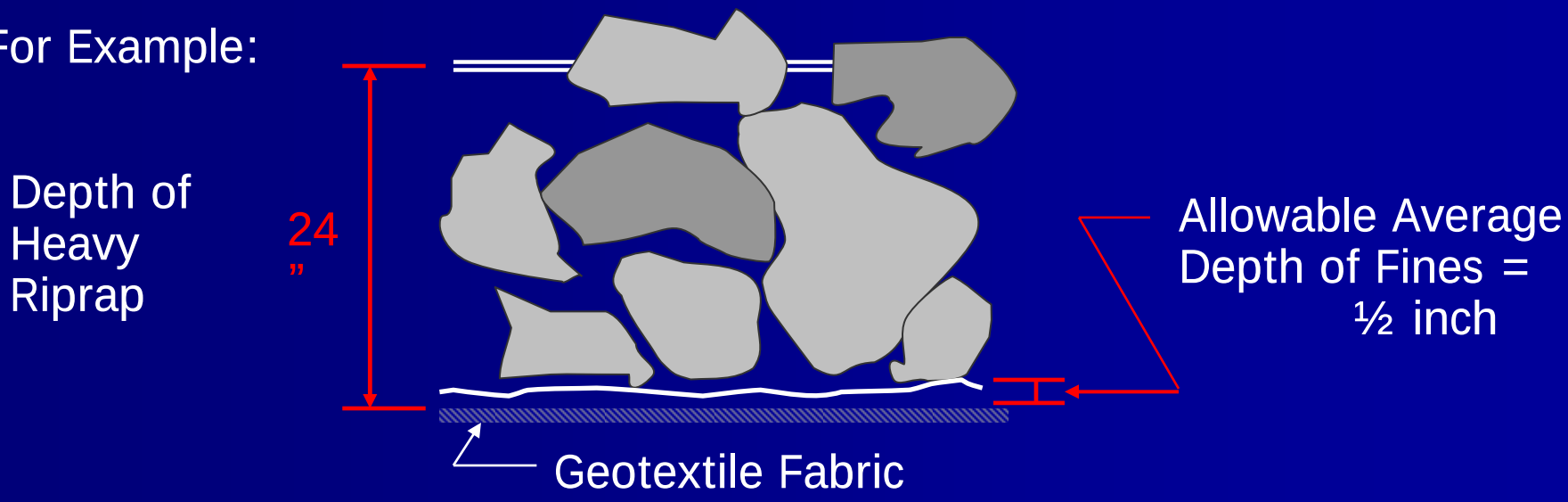
The solution:

- A spec revision that defines fines as any in-place riprap that is less than one inch in size . . .
- And limits the acceptable amount of those fines

Is there too much Fines in the Riprap?

Allowable depth of fines based upon new 2%/1-inch size limits

For Example:



- See the C&M Manual Addition handout

Grouted Riprap

Working Near Waterways

WORKING NEAR WATERWAYS
STSP 107-070

"Erosion Control, Structures"

- Requires Permanent Erosion Control Measures To Be Placed To Q2 Within 7 Days of Starting Bridge Superstructure


RACINE AWNING
P&H

Turbidity Barrier (1069)

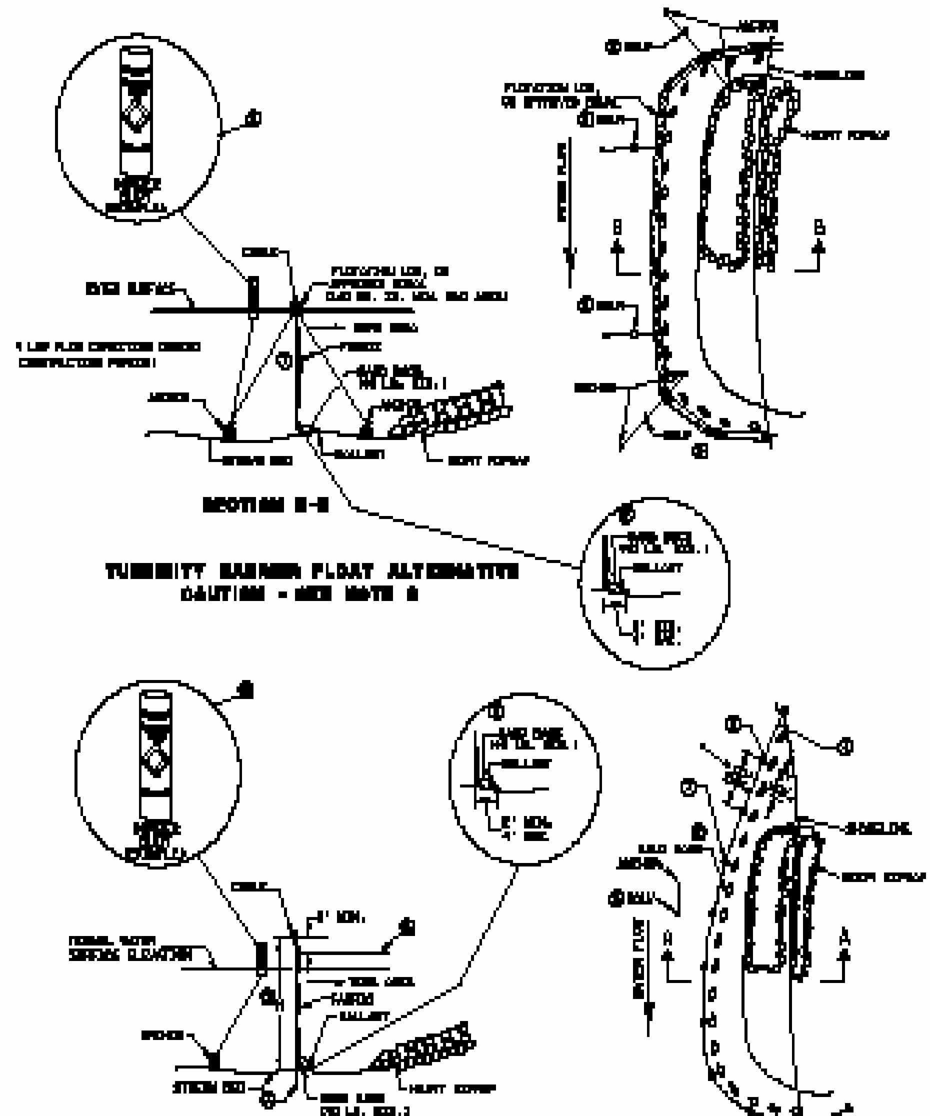

CAT
E35C

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

TURBIDITY BARRIER MAY BE REMOVED AT THE [illegible] PERMANENT EROSION CONTROL MEASURES HAVE BEEN ESTABLISHED.

1. [illegible]
2. [illegible]
3. [illegible]
4. [illegible]
5. [illegible]
6. FLOAT ALTERNATIVE [illegible]
7. [illegible]
8. [illegible]



SECTION B-B

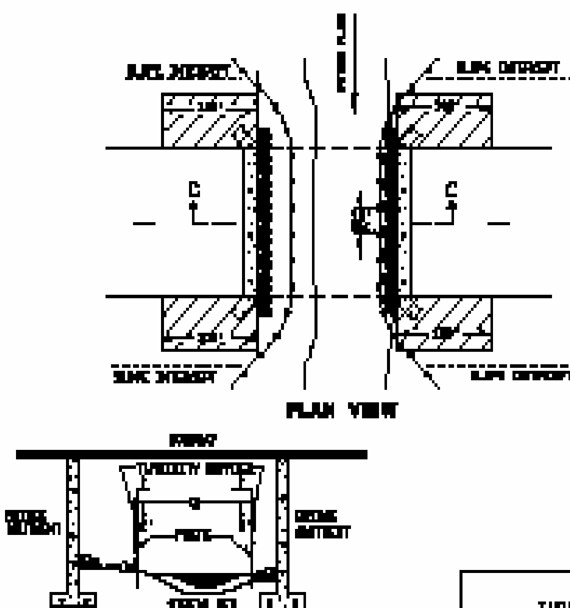
TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6

SECTION A-A

TURBIDITY BARRIER STANDARD POST INSTALLATION

PLAN VIEW

TURBIDITY BARRIER PLACEMENT DETAILS



PLAN VIEW

SECTION C-C

TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

TURBIDITY BARRIER

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

Silt Curtain (1070)

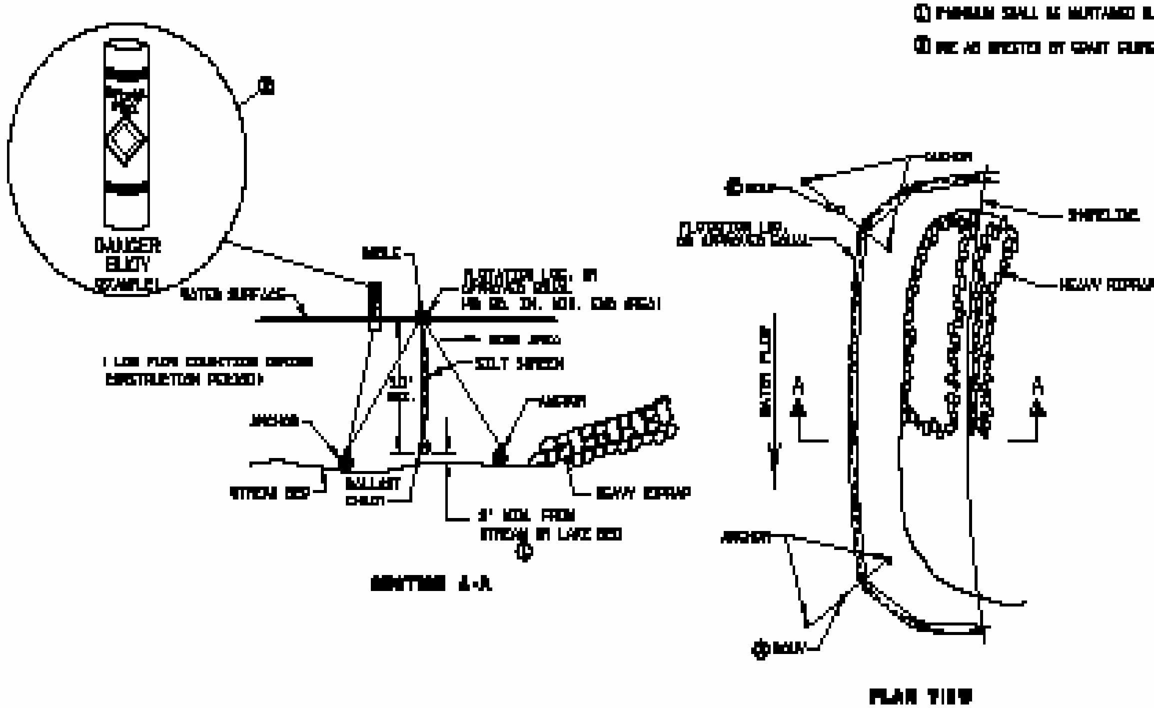
Silt Screen

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

(1) MINIMUM SHALL BE MAINTAINED DURING CONSTRUCTION PERIOD.

(2) USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



SILT SCREEN PLACEMENT DETAIL

SILT SCREEN
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

S.D.D. 8 E 12-1

Articulated Concrete Blocks (ACB's)

Articulated Concrete Blocks

Land Application of Polymers (1050)

Erosion Control

Product Acceptability Lists
for
Multi-Modal Applications

PAL

www.dot.wisconsin.gov/business/engrserv/pal.htm

Product Acceptability List (PAL)

- Erosion Mats
- Tackifiers
- Soil Stabilizers, Type B
- Inlet Protection
- 'FF' Fabrics
- Temporary Ditch Checks
- In-Stream Sediment Traps
- Articulated Concrete Block Systems (ACB's)

  – All products ranked by performance

Wet Application

Most Common and economical on Large Sites

Dry Application

- Suitable for small sites
- Must be diluted with lime
- More expensive on large sites
- Dust may be a concern with workers

Summer test site

Vegetation established before test was conclusive

Fall Test Site

WisDOT PAL Requirements

- WisDNR Toxicity Testing and Use Restriction
- Small Scale Performance Test
- Large Scale Performance Test (application must be in November with monitoring until vegetation establishes)


Most Recent Test Site
control section (no polymer)


Treated section
87% Reduction in Rilling
(lower 10 feet)

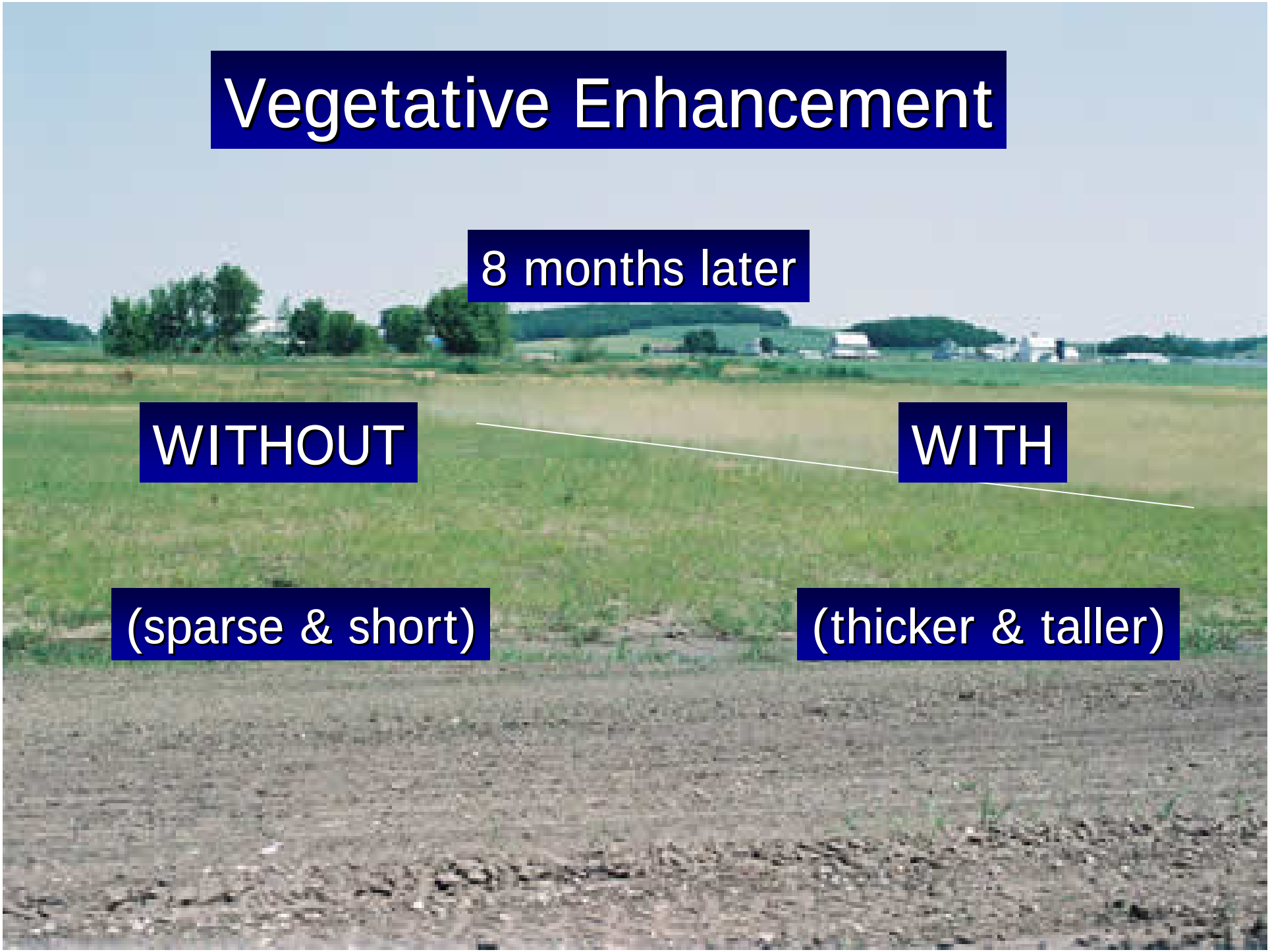
WisDOT Experience

- Polymers are about 80% as effective as erosion mats on slopes
- Not recommended for channel protection
- Effectiveness increases with the use of mulch
- Cost is approximately 10% the cost of erosion mat
- Must be monitored for application rates

Two WisDNR Standards Apply

- (Code 1050) Erosion Control, Land Application of Anionic Polyacrylamide
  Require product approval on WisDOT PAL
- (Code 1051) Interim Sediment Control, Water Application of Polymers
  Presently no WisDOT PAL category


Good Late Season Solution


Vegetative Enhancement
8 months later
WITHOUT
WITH
(sparse & short)
(thicker & taller)